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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/066,693	02/06/2002	Yutaka Nakazawa	8013-1005	5640
466	7590	04/08/2004	EXAMINER	
YOUNG & THOMPSON 745 SOUTH 23RD STREET 2ND FLOOR ARLINGTON, VA 22202			NGUYEN, DANNY	
			ART UNIT	PAPER NUMBER
			2836	

DATE MAILED: 04/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/066,693

Applicant(s)

NAKAZAWA ET AL.

Examiner

Danny Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 February 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)     | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1, 16, 19, 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsuchiya et al (USPN 5,136,473).

Regarding amended claim 1, Tsuchiya disclose an electric double layer capacitor (see fig. 4 and 5) having electrodes (such as 102), which include activated carbon particles (e.g. see col. 1, lines 22-23) and a binder binding the activated carbon particles (e.g. col. 1, lines 31-32).

Regarding claim 16, Tsuchiya discloses the electrolytic solution is impregnated into the activated carbon particles (e.g. col. 5, lines 26-27).

Regarding claim 19, Tsuchiya discloses the binder bridges at least two activated carbon particles to inter-bind the particles (see fig. 1).

The claim 20, Tsuchiya discloses the electrodes (such as 20 shown in fig, 4) are non-sintered e.g. col. 5, lines 30-32).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 3, 8, 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuchiya et al. Tsuchiya discloses an average diameter of the activated carbon particles is 18.6 micrometers and a particle size is in range of 2 to 20 micrometers (e.g. col. 5, lines 21-23). Tsuchiya does not disclose the average diameter of the carbon particles is in range of 5 to 13 micrometers as claimed. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected the average diameter of the activated carbon particles of Tsuchiya to any desired range including 5 to 13 micrometers in order to reduce the thickness of the diameter of the carbon particles. Since it has been held that where the general conditions of a claim are disclosed in the prior art discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ233.

3. Claims 6, 11, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuchiya et al (USPN 5,136,473) in view of Fong et al (USPN 5,069,683). Tsuchiya et al disclose an electric double layer capacitor (see fig. 4) comprises a separator (40), a pair of electrodes (20) separated by the separator, the electrodes including activated carbon particles and a binder binding the particles (e.g. see col. 5, lines 20-21 and col. 1, lines 31-32), a pair of collectors (50) separated by the electrodes (20), wherein a density of the electrodes is in range 0.64 g/cm<sup>3</sup> (col. 5, lines 47-48). Tsuchiya et al do not disclose

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the density of the electrodes as claimed. Fong et al disclose a battery cell is read on the double layer capacitor (see fig. 1) comprises a density of electrodes (20) is in range of 0.2 g/cm<sup>3</sup> to 2.0 g/cm<sup>3</sup> (see col. 12, lines 64-68). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the density of electrodes of Tsuchiya et al to incorporate the density of the electrodes having the range from 0.2 to 2.0 g/cm<sup>3</sup> as taught by Fong et al in order to improve energy density in the double layer capacitor circuit.

4. Claim 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuchiya et al in view of Andelman (USPN 6,127,474). Tsuchiya discloses the specific resistance of the electrodes (20) is 1.4 ohm.cm. Tsuchiya does not disclose the electrodes have the specific resistance as claimed. However, providing a capacitor with an electrode resistance of 1-10 ohm cm is well known in the art. Selecting the exact valued of the electrode resistance is based upon the design constraints imposed by the system in which the capacitor id designed to be used in. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected the specific resistance of electrodes of Tsuchiya et al and Fong et al to incorporate the specific resistance within 2-7 ohm cm based upon such design constraints because this is a known range of electrode resistance as taught by Andelman (col. 7, lines 21-23).

5. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuchiya et al in view of Gan et al (USPN 6,171,729). Tsuchiya discloses a binder for binding the activated carbon particles, but do not disclose the binder as claimed. Gan et

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al disclose a double layer capacitor circuit comprises a binder that contains materials such as fluoro-polymer and polyvinylidene fluoride (e.g. see col. 4, lines 14-20). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the binder material of Tsuchiya to incorporate the binder that contains materials such as fluoro-polymer and polyvinylidene fluoride as taught by Gan et al in order to improve conductivity.

6. Claims 7, and 12, 18, are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuchiya et al in view of Fong et al and further in view of Andelman (USPN 6,127,474). The combination of Tsuchiya et al and Fong disclose the specific resistance of the electrodes (20) is 1.4 ohm.cm, but Tsuchiya et al and Fong et al do not disclose the electrodes have the specific resistance as claimed. However, providing a capacitor with an electrode resistance of 1-10 ohm cm is well known in the art. Selecting the exact valued of the electrode resistance is based upon the design constraints imposed by the system in which the capacitor id designed to be used in. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected the specific resistance of electrodes of Tsuchiya et al and Fong et al to incorporate the specific resistance within 2-7 ohm cm based upon such design constraints because this is a known range of electrode resistance as taught by Andelman (col. 7, lines 21-23).

7. Claims 9, 10, 14, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuchiya et al in view of Fong et al and further in view of Gan et al (USPN

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6,171,729). The combination of Tsuchiya et al and Fong disclose a binder for binding the activated carbon particles, but do not disclose the binder as claimed. Gan et al disclose a double layer capacitor circuit comprise a binder that contains materials such as fluoro-polymer and polyvinylidene fluoride (e.g. see col. 4, lines 14-20). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the binder Tsuchiya et al and Fong et al to incorporate the binder that contains materials such as fluoro-polymer and polyvinylidene fluoride as taught by Gan et al in order to improve conductivity.

### ***Response to Arguments***

8. Applicant's arguments filed 02/03/2004 have been fully considered but they are not persuasive.

In response to applicant's arguments with respect to claim 1 that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., a binder separate and distinct from the electrolyte) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Therefore, applicant's arguments of claim 1 do not distinguish over Tsuchiya reference.

Regarding claims 6 and 11, applicant argued that FONG et al. disclose the carbonation electrodes are pertinent to graphite electrodes and Tsuchiya discloses the activated carbon electrodes excluding from the graphite electrodes. Therefore, one of

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ordinary skill in the art would not combine Tsuchiya and Fong. This argument is not persuasive because Fong do not teach that the electrode (such as 20 and 40) is pertinent to graphite electrodes. Fong states in col. 4, line 8-16 that the electrode is formed from a variety of carbonaceous compositions such as graphite, coke, carbon black, and the electrode (e.g. 20) is formed from a composition including carbon together with a filamentary material, which includes carbon black (col. 5, lines 6-11). It is known that the activated carbon, carbon black, and charcoal are examples of amorphous carbon, which is defined by Nesbitt (USPN 6,544,648, col. 1, lines 29-30). Because the electrodes (such as 20 and 40) are made of carbon black material, they have the same characteristic as the activated carbon electrode. Therefore, applicant's arguments of claims 6 and 11 do not distinguish over the combination of Tsuchiya and Fong.

### ***Conclusion***

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of




the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Danny Nguyen whose telephone number is (571)-272-2054. The examiner can normally be reached on Mon to Fri 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on (571)-272-2058. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DN  
3/24/2004



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